

# ABSTRACT

In a multiple-carrier modulation system, each carrier signal of the multiple carrier system is distributed, recombined, optionally band pass filtered, and transmitted to downlink devices such as cellular phones. The distribution and recombination is performed by either a space-fed technique or through the use of a Rotman lens fed in reverse. The phases of the distributed signals are controlled to be coherent when recombined. Also, a capacity of the multiple carrier system is enhanced through polarization of the carriers in a space-fed version of the system.